CLAIMS

1. A transconductance amplifier for an inductive load, comprising an input stage for receiving a driving signal (set-point), a power stage connected downstream of the input stage and connected to the load, and an output stage fedback on the input stage to transfer a signal associated with the load, the input stage comprising at least one comparator for receiving on an input the driving signal and on another input the output of the output stage.

2. The amplifier of claim 1, comprising a delay block coupled between the comparator output and the power stage.

3. The amplifier of claim 2 wherein a time "d" of the delay block is adjustable and programmable.

4. The amplifier of claim 1 wherein the comparator comprises a hysteretic comparator.

5. The amplifier of claim 2 wherein the power stage comprises a pair of class D amplifiers connected to the load.

6. The amplifier of claim 2 wherein the power stage comprises a pair of amplifiers connected to the load, the one in class D and the other in class AB.

7. The amplifier of claim 6 wherein the amplifier of class AB has a gain –K.

8. The amplifier of claim 3 wherein an adjustable time "d" of said delay block is of at least 500ns.

9. A method for driving inductive loads, comprising a driving step using a transconductance amplifier, and controlling a load current outputted from a power stage by utilizing an output of a comparator.

10. The method of claim 9 wherein the comparator comprises a hysteretic comparator.

11. The method of claim 9 wherein the comparator is delayed in switching by a programmable delay.

12. A circuit, comprising:

an inductive load; and

a transconductance amplifier, comprising:

an input stage comprising a comparator having a first input for receiving a driving signal and a second input for receiving a feedback signal, and an output;

a power stage coupled to the input stage via a delay block, the power stage having an output; and

a sensing stage coupled to the power stage and to the second input of the comparator for controlling the power stage.

13. The circuit of claim 12 wherein the input stage comprises at least one comparator.

14. A transconductance amplifier for an inductive load, the amplifier comprising:

a comparator having a first input for receiving a driving signal and a second input for receiving a feedback signal and an output;

a delay block having an input coupled to the output of the comparator and an output;

a first amplifier having an input coupled to the output of the delay block and an output configured to be coupled to the load;

a second amplifier having an input coupled to the output of the delay block via an inverter and an output;

a sense resistor having a first terminal coupled to the output of the second amplifier and a second terminal coupled to the load; and

a sense amplifier having a first input coupled to the first terminal of the sense resistor and a second input coupled to the second terminal of the sense resistor and configured to generate the feedback signal at an output coupled to the second input of the comparator.

15. A transconductance amplifier for an inductive load, comprising:

a hysteretic comparator having a first input for receiving a driving signal and a second input for receiving a feedback signal, and an output;

a first amplifier having an input coupled to the output of the hysteretic comparator and an output configured to be coupled to the load;

a second amplifier having an input coupled to the output of the hysteretic comparator via an inverter and an output;

a sense resistor having a first terminal coupled to the output of the second amplifier and a second terminal coupled to the load; and

a sense amplifier having a first input coupled to the first terminal of the sense resistor and a second input coupled to the second terminal of the sense resistor and configured to generate the feedback signal on an output coupled to the second terminal of the hysteretic comparator.

16. The amplifier of claim 15 wherein the first amplifier comprises a PWM class deamplifier and the second amplifier comprises a class AB linear amplifier.

17. A transconductance amplifier for an inductive load, comprising:

a comparator having a first input configured to receive a driving signal and a second input configured to receive a feedback signal, and an output;

a delay block having an input coupled to the output of the comparator and further comprising an output;

a first amplifier having an input coupled to the output of the delay block and an output configured to be coupled to the load;

a second amplifier having an input coupled to the first input of the comparator and an output;

a sense resistor having a first terminal coupled to the output of the second amplifier and a second terminal configured to be coupled to the load; and

a sense amplifier having a first input coupled to the first terminal of the sense resistor and a second input coupled to the second terminal of the sense resistor and configured to generate a feedback signal on an output coupled to the second terminal of the comparator.

18. A method for driving an inductive load, comprising:

receiving a signal at an input stage;

driving the signal via a power stage through the load; and

controlling a load current outputted from the power stage via the output of a comparator.

19. The method of claim 18 wherein the comparator comprises a hysteretic comparator.

20. The method of claim 18 wherein the comparator is configured to generate an output, and further comprising delaying the output of the comparator by a programmable delay.